

Notice of Allowability	Application No.	Applicant(s)
	10/088,205	TAKEO ET AL.
	Examiner	Art Unit
	Linh M. Nguyen	2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to RCE filed 03/19/2004.

2. The allowed claim(s) is/are 1,2,6-10,12 and 14.

3. The drawings filed on 08 January 2004 are accepted by the Examiner.

4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some* c) None of the:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 1) hereto or 2) to Paper No./Mail Date _____.

(b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of
 Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1. Notice of References Cited (PTO-892)
- 2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
 Paper No./Mail Date 03/19/04
- 4. Examiner's Comment Regarding Requirement for Deposit
 of Biological Material
- 5. Notice of Informal Patent Application (PTO-152)
- 6. Interview Summary (PTO-413),
 Paper No./Mail Date _____.
- 7. Examiner's Amendment/Comment
- 8. Examiner's Statement of Reasons for Allowance
- 9. Other _____.

DETAILED ACTION***RCE acknowledgement/ Prosecution reopened***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on 03/19/2004 has been entered.

Allowable Subject Matter

2. Claims 1-2, 6-10, 12 and 14 are allowed.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

The closest prior art fails to disclose or fairly suggest at least one reason for each corresponding claim listed as follows:

- a) An output $V_o(t)$ of the phase detector circuit represented by: $V_o(t)=(V_i(t)-V_i(t-T)) \times V_i(t-\theta T/2\pi)$, where the signal $V_i(t-T)$ is delayed from the signal $V_i(t)$ by the period T of the signal $V_i(t)$, as called for in independent claim 1;
- b) A multiplier circuit for outputting a product of another input random NRZ signal having the same pattern as that of the input random NRZ signal and the phase difference and an output of the subtracter circuit, as called for in claims 2 and 6;
- c) An output $V_o(t)$ of the phase detector circuit represented by: $V_o(t)=(V_i(t)-V_i(t-(T-\delta T))) \times V_i(t-\theta T/2\pi)$, where the signal $V_i(t-(T-\delta T))$ is delayed from the signal $V_i(t)$ by the time of

(T- δT), which is shorter than the period T of the signal $V_i(t)$, as called for in independent claim 7; and

d) An arithmetic operation performed by a combination of one multiplier circuit and a subtracter circuit, configured in a phase detector circuit, only on the input random (Non-Return-To-Zero) signal, the delayed signal, and the second signal to produce an output signal having a DC voltage component corresponding to the phase difference, as called for in independent claim 8.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh M. Nguyen whose telephone number is (571) 272-1749. The examiner can normally be reached on Alternate Fri, Monday - Thursday from 7:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMN



LINH MY NGUYEN
PRIMARY EXAMINER